



## ecology and environment, inc.

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International Specialists in the Environment

### M E M O R A N D U M

DATE: October 15, 1985  
TO: Greg Smith  
FROM: Tim Maley R05-8504-13  
SUBJECT: Michigan/MI0104  
Rochester, MI  
Sandfill Landfill #2  
MID980499875: Monitoring Well Installation

US EPA RECORDS CENTER REGION 5



458130

In accordance with the above referenced technical directive document, Region V FIT has been tasked to design a work plan/sampling survey for the subject site. Objectives of the work include determination of contamination in groundwater in and around the site area. Results of the sampling of the monitoring wells will be used to calculate a HRS score and ultimately determine whether the site will be placed on the EPA's National Priority List (NPL).

The Sandfill Landfill is located in the southwest quarter of Section 24, Township 3 North Range 11 East, Avon Township, Oakland Co. The landfill itself comprises some 25 acres. The site is among nine other local landfills. Residents of semi-rural Rochester, Michigan are also nearby. The landfill has been inactive since 1974 and now remains covered and well vegetated.

Geologically, the area is typically found to have an uppermost layer of glacial drift which consists of approximately 20 to 30 feet of sand and gravel. Water is usually encountered around 10 to 25 feet. It is anticipated that the water levels will be close to the surface. This shallow aquifer water is considered ~~portable~~ and is used by residents within a three mile radius of the site. The glacial drift overlies lacustrine clays with an average thickness of

80 to 100 feet. Below the clay unit is the Coldwater shale bedrock. The Coldwater shale, approximately 100 to 190 feet below the glacial drift, is comprised of interbedded sandstones and shales. There are no valuable aquifers at or below this depth.

Regionally the groundwater flow of the shallow aquifer is expected to be from west to east, toward the Clinton River. However, the local groundwater flow direction may be influenced by pumping of wells nearby the site. The groundwater has already been confirmed to be contaminated. Several residents who once relied on their own wells now have municipal hook-ups. It is unknown how many residents within a three mile radius rely on their own wells today. It is also unknown which landfill(s) could be the source of contamination.

In order to determine if Sandfill Landfill is a source of contamination, a groundwater monitoring well system must be installed. First the site boundaries must be clearly defined. To determine local groundwater flow at this time, the first three wells will be placed to form a triangle around the site (see location map). From these three wells the flow direction can be recorded. The remaining wells will be placed accordingly. It is anticipated that 6 or 7 wells are to be installed around the perimeter of the site. These wells are to be placed as shown on the location map. All of these wells are shallow, terminating 10 feet after encountering groundwater or upon encountering lacustrine clay. A Shelby tube sample of the clay is recommended for permeability testing. The anticipated well depths are about 25 feet.

All drilling locations and screen placements will be through the supervision of the E & E site representative. Borings will be done using hollow stem auger methods. The drill rig and equipment will be steam cleaned prior to drilling at each well site to prevent cross-

contamination. The sub-contractor will obtain representative split spoon samples of soil at surface, 2.5 feet, 5.0 feet and thereafter at intervals not exceeding 5 feet. All samples will be screened for contaminants with a HNU lamp photo ionizer as samples are obtained in the field.

Well construction will be of 2 inches diameter, threaded, flush jointed, schedule 40 PVC. Screens are to be 10 feet long wire wound PVC (may be less than 10 feet because thickness of saturated drift may be less than 10 feet). Screens should be naturally back filled 2 feet above top of screen, followed by a 2 ~~ft~~<sup>00</sup> bentonite seal. The remainder of the hole is to be tremmie placed to the surface with a neat, cement bentonite grout of 97 lbs. of cement to 12 lbs. of bentonite. Five foot steel, locking, protective casings will be installed around the well with a nominal 3 ft. stick up. Wells are to be developed using compressed D or E quality breathing air until they run clean as determined by the on-site E & E geologist.

At this time, no extraordinary safety procedures are anticipated, however, all E & E safety plans and requirements will be adhered to by the drilling.

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